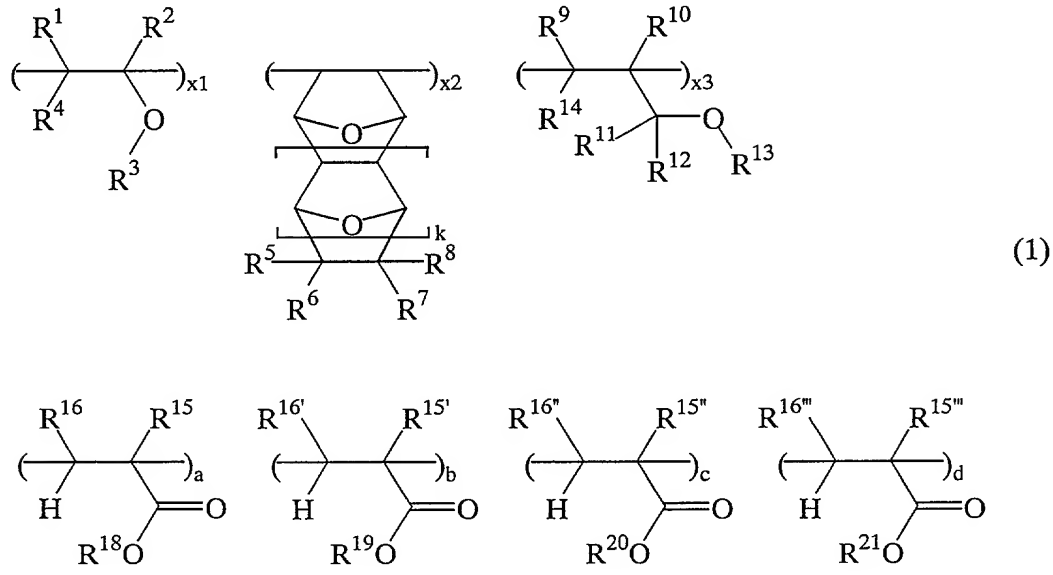
CLAIMS:

1. A polymer comprising recurring units of the following general formula (1) and having a weight average molecular weight of 1,000 to 500,000,



(1)

wherein R^1 and R^2 each are hydrogen or methyl,

R^3 and R^4 each are hydrogen or a straight, branched or cyclic, monovalent hydrocarbon group of 1 to 15 carbon atoms which may contain a hetero atom, and R^3 and R^4 may bond together to form a ring, wherein R^3 and R^4 together represent a straight, branched or cyclic, divalent hydrocarbon group of 1 to 15 carbon atoms which may contain a hetero atom,

each of R^5 to R^8 is hydrogen, a hydroxyl group or a straight, branched or cyclic, monovalent hydrocarbon group of 1 to 15 carbon atoms which may contain a hetero atom, at least one of R^5 to R^8 contains a hetero atom, any two of R^5 to R^8 may bond together to form a ring, wherein the ring-forming two R's together represent a straight, branched or cyclic, divalent hydrocarbon group of 1 to 15 carbon atoms which may contain a hetero atom,

R^9 and R^{10} each are hydrogen or methyl,

each of R^{11} to R^{14} is hydrogen or a straight, branched or cyclic, monovalent hydrocarbon group of 1 to 15 carbon

atoms which may contain a hetero atom, a pair of R^{11} and R^{12}, a pair of R^{11} or R^{12} and R^{13}, a pair of R^{11} or R^{12} and R^{14}, or a pair of R^{13} and R^{14} may bond together to form a ring, wherein each pair represents a straight, branched or cyclic, divalent hydrocarbon group of 1 to 15 carbon atoms which may contain a hetero atom,

R^{15} is hydrogen, methyl or $CH_2CO_2R^{17}$,

$R^{15'}$ is hydrogen, methyl or $CH_2CO_2R^{17'}$,

$R^{15''}$ is hydrogen, methyl or $CH_2CO_2R^{17''}$,

$R^{15'''}$ is hydrogen, methyl or $CH_2CO_2R^{17'''}$,

R^{16} is hydrogen, methyl or CO_2R^{17},

$R^{16'}$ is hydrogen, methyl or $CO_2R^{17'}$,

$R^{16''}$ is hydrogen, methyl or $CO_2R^{17''}$,

$R^{16'''}$ is hydrogen, methyl or $CO_2R^{17'''}$,

R^{17}, $R^{17'}$, $R^{17''}$ and $R^{17'''}$ may be identical or different between R^{15} and R^{16}, between $R^{15'}$ and $R^{16'}$, between $R^{15''}$ and $R^{16''}$, and between $R^{15'''}$ and $R^{16'''}$, respectively, and each is a straight, branched or cyclic alkyl group of 1 to 15 carbon atoms,

R^{18} is hydrogen or a monovalent hydrocarbon group of 1 to 15 carbon atoms containing a carboxyl or hydroxyl group,

R^{19} is a monovalent hydrocarbon group of 2 to 15 carbon atoms containing at least one partial structure selected from the group consisting of ether, aldehyde, ketone, ester, carbonate, acid anhydride, amide and imide,

R^{20} is a polycyclic hydrocarbon group of 7 to 15 carbon atoms or an alkyl group containing a polycyclic hydrocarbon group,

R^{21} is an acid labile group,

k is 0 or 1,

x1, x2, x3, a, b, c and d represent a molar compositional ratio of the recurring units associated therewith, satisfying x1+x2+x3+a+b+c+d = 1, x1, x2, x3, a, b and c are numbers inclusive of 0, d is a number of more than 0, all of x1, x2 and x3 are not equal to 0 at the same time.

2. The polymer of claim 1 wherein the acid labile group represented by R^{21} in formula (1) is a tertiary alkyl group having a cyclic structure.

3. A resist composition comprising the polymer of claim 1.

4. A process for forming a resist pattern comprising the steps of:

applying the resist composition of claim 3 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation or electron beam through a photo mask, and

optionally heat treating the exposed coating and developing it with a developer.